

Report D-75-2

INSECT AND DISEASE DETECTION SURVEY ON
THE ALLEGHENY NATIONAL FOREST
1975

BY

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INTRODUCTION

Over the past decade, several types of insect and disease activity have been detected and evaluated on the Allegheny National Forest (ANF) Pennsylvania (1, 2, 3, 4, 5, 10, 12). One of the most significant was the defoliation of 150,000 acres by the fall cankerworm, Alisophila pometria (Harr.) in 1964 (10). Host trees included black cherry, sugar maple, red maple, American beech, white oak, red oak, yellow birch, and other hardwoods. Hanson (1) conducted a biological evaluation in 1967 and determined that no suppression activities were warranted. In 1968, the fall cankerworm population collapsed below detectable levels (3).

Another insect which caused concern was the cherry scallop shell moth (CSSM), Hydria prunivorata (Ferguson). In 1973, it defoliated 350,000 acres of black cherry and choke cherry on state, private and national forest lands in Pennsylvania. In 1974, there was a population collapse in previously heavily defoliated areas (4).

Also in 1974, the Allegheny National Forest personnel detected over 10,000 acres heavily defoliated by the oak leaf roller Archips semifernus Walker. Oak mortality reported by Forest personnel was examined by FI&DM personnel.

Other insects that have been noted to a lesser degree during surveys include the linden looper, Erannos tiliaria Harr; a looper, Phigalia titea (Cram.), the forest tent caterpillar, Malacosoma disstria Hubner, the

European snout beetle, Phyllobius oblongus (L.), and the oak leaf tier, Croesia semipurpurana (Kft.) (2).

In addition to insects, a root rot, Fomes annosus (Fr.) Cke. (5), and ash dieback (cause unknown) (6) have been detected. Other insects and diseases have caused considerable tree damage outside the forest boundary. Hundreds of thousands of acres in Pennsylvania and New York have been defoliated by the gypsy moth (12) and American beech is being killed by the beech bark disease in several counties in New York (7) and Pennsylvania (9).

The purpose of this survey was to detect and delineate current insect and disease activity on the ANF. Participating in the survey were Porter Gearhart, TM, ANF; Bob Smith, Bradford District, ANF; Leon LaMadeleine, pathologist, Ronald Terry, entomologist, Robert McNichols and Larry Swain, forestry technicians, FI&DM, Delaware Field Office (DFO).

METHODS

Aerial sketch map surveys of the entire forest were made on June 9, July 7, and August 12, 1975, to ensure detection of all problems. Surveys were flown at 2,000 feet above the terrain at an air speed of approximately 100 mph. All visible tree damage or mortality was noted and later ground checked to determine or verify the cause of defoliation and mortality. Tree defoliation was recorded as follows: 0 to 30 percent, negligible to light; 31 to 60 percent, moderate; 61 to 100 percent, heavy.

Unidentified insects were collected, stored in alcohol, and brought to the Delaware Field Office. Larvae which could not be identified at the DFO were sent to Mr. Edward Simon, entomologist, Pennsylvania Bureau of Forestry, Department of Environmental Resources, for identification.

RESULTS

A complex of defoliators (linden looper, fall cankerworm, and to a lesser degree, Phigalia titea) caused 90 percent of the heavy defoliation. This complex defoliated approximately 67,000 acres, primarily on the Bradford District, northeast of Warren (Fig. 1). The tree species most affected were, in order of preference, oak, basswood, cherry, beech, and maple. If oak or cherry were present, they were heavily defoliated and beech and maple lightly defoliated. In areas where beech, maple, and basswood were predominant species, basswood was completely defoliated, beech was heavily defoliated, and maple was lightly defoliated. Heavy defoliation of beech was not consistent within stands. One area, defoliated by the fall cankerworm, differed from the others in that the maple was completely defoliated by this single insect species.

The oak leaf roller defoliated 60,000 acres on the Sheffield and Marienville Districts (Fig. 1). Defoliation varied from negligible to light. Other insects found on oak in the oak leaf roller areas were: unidentified rollers in the super families Tortricini and Cnephasilni and sawflies in the genera, Strongylogaster and Acordulecora.

During ground checks, we observed areas affected by black knot, Dibotryon morbosum, (Schw) Th. & Syd. on cherry; Strumella canker on oak; anthracnose, Gnomonia platani, Edg. on sycamore; and air pollution on several tree species. FI&DM will conduct a detection survey and evaluation of black knot in November, 1975. Strumella canker, anthracnose, and air pollution did not appear to affect large enough areas for concern.

DISCUSSION

The linden looper, fall cankerworm, and Phigalia titea, caused most of the defoliation detected on oak, cherry, beech, and maple in the Bradford District. The preferred hosts were 80 to 100 percent defoliated by mid-June and had begun to refoliate by mid-July.

The cherry scallop shell moth population, which caused heavy defoliation in 1973, has apparently collapsed. Defoliation by this insect was negligible and no tree mortality was seen. Trees heavily defoliated in 1974 are recovering.

Oak defoliation by the oak leaf roller is another matter. As opposed to the free-feeding of the loopers, the oak leaf roller complex affects the buds as well as the leaves. There is a history of tree mortality associated with the oak leaf roller complex (8). A number of areas were heavily defoliated by these insects in 1974 but heavy defoliation was not expected in 1975.

About 60,000 acres were affected in 1975 but defoliation was only negligible to light. A moderate amount of mortality was observed in 1975^{1/}.

RECOMMENDATIONS

1. National Forest personnel should be alert for increases in mortality in all infested areas. Salvage dead and dying trees wherever practical.
2. FI&DM personnel, Delaware Field Office, should evaluate means of predicting defoliation by the fall cankerworm.
3. FI&DM personnel, Delaware Field Office, should conduct a survey for black knot of cherry to determine levels of incidence in mature stands and reproduction areas and the position of the defect on individual trees.

^{1/} Personal communication with Mr. George N. Semmens, Timber Mgt., Supervisor's Office, ANF. February 19, 1975.

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